

The First Days and Months of the COVID-19 Pandemic

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Abstract

The outbreak of a mysterious illness that started in Wuhan, China by the end of 2019, spread and sickened millions of people around the globe to the extent of being declared as a pandemic by the WHO. A novel coronavirus strain named SARS-CoV-2 by the ICTV, testing the capabilities of our modern world and suffocating health care systems, meanwhile gathering all of scientist's research and governmental powers to fight off its health challenging disease, named as COVID-19. This work, which is topical given its correlation to what is happening now in our lives, would present a perception and an insight on the pandemic starting with the chronological events by the numbers, its factors, and worldwide procedures against it. The entire world is helplessly watching as SARS-CoV-2, spreads, with a daily alarming high affected/deceased case, where the disease is still going through versatile pathways. The nature of COVID-19 is revealing itself as the pandemic unfolds, but when, how and will it ever be over?! a question by far important...!

Keywords: SARS-CoV-2, COVID-19, Pandemic, Chronology, Strategies.

INTRODUCTION

Today, earth faces many complex problems, such as emerging infections, that a single discipline, institution, or country cannot respond to alone [1]. In this new decade of the 21st century, surfaced the first public health emergency of global concern [2]. A mysterious illness started from Wuhan, China, has sickened millions of people throughout the world. A newly emerged strain that is currently testing the capabilities of our modern world for dealing with unfamiliar pathogens [3]. Meanwhile, the infection spread globally within a short time due to extensive international travels to celebrate the Chinese Lunar New Year [4]. The causative agent was a novel coronavirus (nCoV/β-coronavirus) scientifically named severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) for the similarity of its structure to severe

acute respiratory syndrome related coronaviruses [5-7], previously known by the provisional name of 2019 novel coronavirus (2019-nCoV), which causes the Corona Virus Disease COVID-19, a highly contagious and progressive infectious disease [8-10]. The entire world is anxiously watching as SARS-CoV-2 virus, spreads from country to country [11], dividing it into a group of countries within reach of eradicating the COVID-19, and another group of countries in which is leading inexorably toward universal presence of the disease with possibly herd immunity [12]. Unemployment rates are growing, and economy is continuously shrinking in many affected countries to a point where, the International Monetary Fund declared this pandemic the worst crisis since the depression at the beginning of the 20th century [13]. The current Coronavirus pandemic represents also the most dramatic healthcare crisis linked to acute and highly infectious diseases in the 21st century [14].

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Global efforts to contain the virus were mixed and infection/death rates are not the same between countries, age groups, or even races [15]. There have been multiple global epicenters like United States of America (USA), United Kingdom (UK), Italy, Spain, France, Germany, Turkey, Iran, and Russia [16, 17]. But, the main epicenter of the disease was Guangdong, China, from where it spread internationally [18], on account of aggressive containment strategies, the acceleration of new cases in China has slowed whereas that outside of China has increased [19]. The pandemic wave appeared first in Asia followed by Europe deeply touching Italy, Spain, and France, then spread to America, Australia and lastly Africa, mainly via returning travelers from China [14, 20]. Amid the outbreak, a continuous rise in mortality rates has been observed [17]. According to epidemiologists, the fatality rate of COVID-19 could change as SARS-CoV-2 can mutate [16], moreover, quality, quantity and capacity of healthcare systems substantially contribute to the successful management of hospitalized patients and can reduce mortality rates [17]. The worldwide mortality rate of 6.9%, was reported by the WHO as of May 8, 2020, with death rates ranging from ~1% in Chile and Palestine to 14% in Italy [15].

CHRONOLOGY

Ahead of January 1st, 2020, 55% of the infected cases were linked to the Huanan Seafood Wholesale Market, and the first case of SARS-CoV-2 infection confirmed outside of China was on January 13th in Thailand, and then on 16th of the month, the first infected case was confirmed in Japan, but these cases were always linked to the Huanan Seafood Wholesale Market [21]. As of mid of February 2020, China bears the large burden of morbidity and mortality, whereas the incidence in other Asian countries, Europe and North America remained low so far [22]. Through rapid and frequent international air travel, the novel virus infections have spread to over 36 countries around the world confirming approximately 80000 infectious patients and above 2500 deaths [1, 23]. On February 27th, Saudi Arabia suspended the year round Umrah pilgrimage, even with the low transmission of the virus, in contrast with Iran, which did not intervene in the religious pilgrimage in Qom and has seen large regional outbreaks [24]. As of March 2nd, the number of daily new cases outside of China was nine times higher than those within China [19], and the WHO warned that COVID-19 is a “public enemy number 1” and potentially more powerful than terrorism, declaring Europe to be the new center of the pandemic on March the 13th, due to the massive increase of confirmed cases [21, 25]. After one day of their statement, over 140.000 cases were reported worldwide with more than 5400 deaths, surpassing the combined number of cases and deaths of the two previously emerging coronaviruses, SARS-CoV and MERS-CoV [26]. Afterwards, the area with the highest number of confirmed cases was Italy, whereas of 16 March, marked 24.747 reported cases, and 13.938 cases in Iran have been also confirmed, with a totality of 169.930 confirmed cases, about half of which were within mainland China [19]. The analysis of data with a simple model revealed that the recovery rate is the same for Italy and China, while infection and death rate appear to be different, with a mortality rate of 4% to 8% in Italy and lower in china with 1% to 3% [27]. Although the containment measures implemented in China have reduced new cases by more than 90%, this reduction was not the case in other countries [15]. At the beginning of April, Italy has been hit very hard with 110.574 cases and 13.155 documented deaths related to COVID-19 infection, this could be explained by the fact that the country has the most elderly population in Europe and the second most elderly population in the world after Japan, with a high proportion of patients with history of smoking and high rates of chronic obstructive pulmonary disease and ischemic heart disease, not to mention, that the Italian life is famous for its socialization and frequent congregations and clustering [28], strikingly, as of 13th of April, the world enlisted 1.773.084 confirmed cases, 111.652 deaths, and 467.074 recoveries [21]. After the rapid spread of SARS-CoV-2 infectious disease worldwide, between February and April 2020, a total of 5.267.419 confirmed cases and 341.155 deaths were marked on May 25th, in the last weeks a decrease in new infections was observed in European countries, and the confirmed cases are not as severe as before [29], with the virus strongly hitting Europe, afterwards came the United States of America, which is recording a daily growth of 25.000 new cases, making it the most hit country with 30% of all world cases and still rising [13]. By June 1st, 2020, more than 6 million individuals and more than 370 thousand case fatalities were documented worldwide [30] and it passed the the ten million threshold by July where on the 28th of the month, 16,341,920 COVID-19 cases,

650,805 deaths and 10,451,291 recoveries have been reported worldwide, despite the increasing number of recovered cases, there is rising concern regarding the sequelae following a diagnosis of COVID-19 [31]. And within the next months it stepped over the 20 million sill and recorded 21,056,181 cases, and 765,771 by August 15, globally [32]; a year after that, and now, 31st of August 2021, with more than 218 million cases and 4.5 million deaths worldwide, the COVID-19 pandemic is still having an unprecedented influence on the global economy and population health as a potent global disaster [33].

COMMUNITY MITIGATION MEASURES

Many countries obligated containment measures such as isolation, quarantine, lockdown with police patrolling the streets, social distancing, also closures of public schools/ universities, prohibition of any social gatherings and contact phone tracking, plus the travel bans and quarantine procedures for incoming travelers, in an effort to contain the spread of COVID-19 and decrease the public health burden [34, 35], even on having strict guidelines on funerals, given the role of bodily fluids in viral transmission and crowding during the event [24]. It is important to understand that the concept of social distancing was not to eradicate the COVID-19, but more of, to slow down its transmission, flattening the curve of afflicted population, hence declining the pressure on the health care systems and economy, in this manner, reduce the fatality rate [16]. Other mass gatherings like the 2020 Olympic Games and Hajj pilgrimage were affected and needed a lot of reconsidering [24]. Imposing controls has had a significant impact on the pandemic [36], where four parameters were important to assess the magnitude of the risk posed by the SARS-CoV-2, the transmission rate, the incubation period, the case fatality rate (CFR), and the occurring of asymptomatic transmission [19].

FACTORS OF THE VIRAL SPREAD

Older age, male gender, obesity, and existing immune deficiencies were the main risk influencing factors [37-39]. There's a wide range of other factors that may play a significant role in total case numbers like, the use of safety measures in public transportation, population density, age structure of the country, demographics and back-ground disease in the population, adding to that, the quality of the health systems or insufficient medical coverage, and how media presents the urgency of this immediate health threat, also, the local temperature and humidity factors, cultural and religious practices [15, 17, 28].

However, statistical correlation study has proven that COVID-19 does not depend on external weather factors [16], likewise, other results of a study implied that both tropical and temperate locations are up for severe outbreaks of the disease and that summertime temperatures will not effectively limit the spread of the infection [40], but this doesn't mean that climate is not important in the longer term. For the moment, there is no evidence that higher temperatures may modify virulence or pathogenicity of SARS-CoV-2 [29].

Dense communities are at particular risk and the most vulnerable region, certainly is Africa, due to insufficient diagnostic capacities [22]. The impact of a similar epidemic as seen in Europe, would have been devastating in Africa, since it has some of the poorest countries in the world with a poorly resourced health systems, a study believes that the epidemic has started later in Africa than for other regions globally because of the limited international air traffic, and besides in having young populations, rather than the climate conditions [41].

CONTROL STRATEGIES

COVID-19 case numbers depend on testing efforts, and mortality rates depend on the local definition of COVID-19 related deaths [17]. The key to success has been a large, well-organized testing program, combined with extensive efforts to isolate the infected and trace their contacts. For example, the USA has had a slow start, having problems with its test kits, beginning with only 74 tests per million inhabitants, compared with 5200 tests per million in South Korea which didn't order lockdown and had good outcomes. Only after propagation, USA began to roll out testing on a mass scale after that it was a little late [34].

Elsewhere, in Europe, Germany was a front-runner, its statistics number of deaths from the virus, were remarkably low in comparison with other countries, especially its neighbors, this relatively low fatality rate can be attributed partly to the nation's early and high level of testing among a wide sample of the population, including milder cases in younger people, with more than 100,000 tests processed per week [34, 42]. Modern geographic information systems (GIS) technologies, communication through map-based Dashboards, also supported the critical decision-making, sharing and understanding the spread of the SARS-CoV-2 in the communities [43].

The SARS outbreak was a wakeup call for Taiwan which made it implicate a quick strategy in adopting specific approaches for case identification, containment, and resource allocation to protect the public health, using new technologies, including Quick Response (QR) code scanning, tracing with the National Health Insurance (NHI) smart card and online reporting of travel history and health symptoms to classify travelers including border control, maximizing response system efficiency, activating early proactive measures, promoting transparency and public education, enforcing social cohesion, and fostering a public sense of urgency, in addition to an active role in resource allocation for setting the price of masks and using government funds and military personnel to increase mask production [44, 45]. Taiwan also, had the foresight to create a large stockpile of face masks that other countries might now consider it as part of future epidemic plans [46].

China has rolled out perhaps the most ambitious, agile, and aggressive disease containment effort in history, in addition to building two COVID-19 dedicated hospitals in Wuhan in about 1 week and launching an unprecedented effort to trace contacts of confirmed cases via widely used mobile phone apps, where they helped enforce the restrictions and allowing the government to keep on track of people's movements [47]. New technologies were also used, like the unmanned aerial vehicles (UAV) that were transporting crucial medical supplies and patient lab samples and drones that held broad disinfectant operations [43].

The engagement in mass testing might have contributed to the quick control of the outbreak in countries like Germany and South Korea, whereas the reluctance to provide mass testing of those exhibiting symptoms of infection done in the UK and United States has, arguably, prolonged the outbreak [15].

A study hypothesizes and ensures that social isolation or social distancing might restrict the spreading of SARS-CoV-2 as it may slow down the spread factor [16], and it is not known whether a new pandemic wave may emerge when lockdown measures are removed [28]. It is essential for governments to consider this before the return to normal life [15].

CONCLUSION

This novel corona virus pandemic has changed the rhythm of our lives, whether from the perspective of a social, economic, or political level with devastating consequences. As the pandemic unfolds, it reveals bit of a tip of the iceberg at every wave, since the nature of COVID-19 is still showing itself, with much yet to discover with the "long term covid" that has and will leave deep and longstanding scars.

Everyone wants to flip the page on COVID-19 and go back to normal, but till then, social distancing, face masks and vaccination are our new normal. So, it's up to us to stand against the propagation of the disease and end it.

To date, there's no certainty nor clarity on how this pandemic will evolve in the coming hour, days, months and all we can do, is wait, stay safe and pray, in hopes that nature would eradicate this virus by itself and that other destructive pandemic waves won't be on their way.

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